

Mumbai University

Question Paper

[IDOL – OLD COURSE]

(MAY – 2018)

PAPER - IV

ELECTIVE

**GEOGRAPHIC
INFORMATION
SYSTEM**

Time: 3 Hours**Total Marks:** 100**N.B.:** (1) All Question are Compulsory.

(2) Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.

(3) Answer To The Same Question Must Be Written Together.

(4) Number To The Right Indicates Marks.

(5) Draw Neat Labeled Diagrams Wherever Necessary.

(6) Use of Non – Programmable Calculator is allowed.

Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

- (A) Write a short note on Thematic map. (5)
- (B) Explain the following terms of object based data model and give suitable example: (5)
- (i) Association
- (ii) Aggregation
- (C) Explain Network database with suitable example. (5)
- (D) Explain the neighborhood operations with suitable example. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) List and explain data analysis kind of GIS operations. (5)
- (B) Define: (5)
- (i) Datum
- (ii) False Easting
- (iii) Map Projection
- (iv) Meridian
- (v) Scale Factor
- (C) What is map projection? List and explain commonly used map projection. (5)
- (D) What is rasterization? Write the steps for it. (5)
- (E) Convert the following into degrees: (5)
- (i) $45^{\circ} 15' 45''$
- (ii) 1745 rad
- (F) Write a short note on spatial reference information of raster data. (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) List the common resampling methods and explain them. (5)
- (B) Explain the map-to-map and image-to-map transformation. (5)
- (C) What is RMS? Explain the role of RMS error in Affine transformation. (5)
- (D) What are the two types of field data? Explain. (5)
- (E) Write a short note on metadata. (5)
- (F) Explain digitizing with suitable example. (5)

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What is normalization? Explain with example. (5)
- (B) Explain: (5)
- (i) Isarithmic map
- (ii) Flow map
- (C) Explain how text is placed in map body. (5)
- (D) Explain the following with respect to color: (5)
- (i) Hue
- (ii) value
- (iii) Chroma
- (E) What is attribute data in GIS? List and explain different types of attribute table. (5)

- (F) List the types of attribute data based on measurement scale. Explain. (5)

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Write a short note on data visualization. (5)
 (B) Explain the concept of data exploration? (5)
 (C) What is descriptive statistics? Explain. (5)
 (D) Explain spatial aggregation. (5)
 (E) What is the output of the following for a statement (slope = 1) OR ((Aspect =3)) (5)

Aspect

Slope

3	2	1	1	1	2	2	2
2	3	3	3	3	3	1	1
1	2	3	3	2	1	1	3
2	2	3	1	1	1	2	2
2	2	2	1	1	1	1	1
3	2	2	1	2	1	2	3
3	2	3	3	3	2	2	3
2	2	2	1	3	1	3	3

1	2	2	2	1	1	1	2
2	3	1	1	2	2	1	1
1	2	3	3	2	1	1	3
2	2	3	1	1	1	2	2
2	2	2	1	1	3	3	1
3	1	2	1	1	1	2	3
3	1	3	3	1	2	2	3
1	1	1	2	3	2	3	3

- (F) Explain feature selection by graphic data query with suitable example. (5)

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) List and explain various overlay operations based on feature type. (5)
 (B) List and explain various overlay methods based on Boolean connector. (5)
 (C) What do you mean by pattern analysis? Explain Nearest Neighbor analysis. (5)
 (D) What is buffering? Explain with example. (5)
 (E) What is local operation? Explain local operation with a single raster. (5)
 (F) Explain the raster data generalization operation with suitable example. (5)

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Describe how semivariance can be used to qualify the spatial dependence in a data asset. (5)
 (B) List global methods and explain any one. (5)
 (C) List and explain the elements of spatial interpolation. (5)
 (D) What is Kriging? Explain. (5)
 (E) Explain trend surface model with suitable example. (5)
 (F) Explain the Inverse Distance Weighted Interpolation local method. (5)